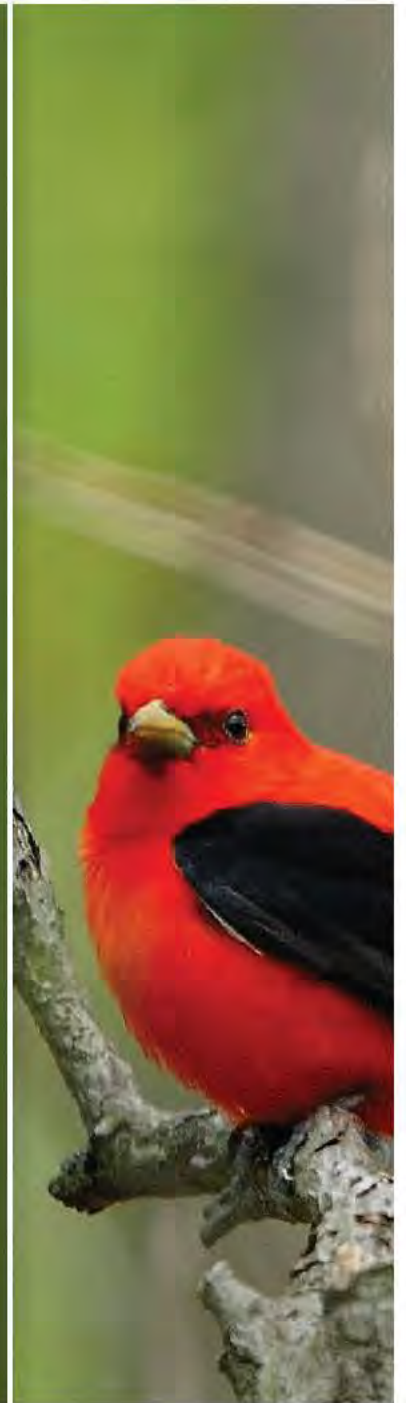




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## GLOSSARY

**A-weighted decibels(dBA)** – An expression of the relative loudness of sounds in air as perceived by the human ear.

**accretion** – The process of growth or enlargement by a gradual buildup of sediment.

**accretion area** – A portion of the shoreline at which coastal sediments return to the visible portion of the beach, gradually increasing its size.

**adaptive management** – A systematic process for continually improving management policies and practices by learning from the outcomes of operational programs. Its most effective form, “active” adaptive management employs management programs that are designed to experimentally compare selected policies or practices, by implementing management actions explicitly designed to generate information useful for evaluating alternative hypotheses about the system being managed.

**aeolian transport** – Movement and weathering of sand particles behind and parallel to the shoreline caused by wind. It is the first process of coastal dune formation.

**anadromous** – Migratory fishes which spend most of their lives in the sea and migrate upstream to fresh water to breed.

**anoxia** – A total decrease in oxygen levels.

**anthropogenic effects** – Effects which are caused by or attributed to humans. As used within this document, they are factors that cause stress in natural systems.

**attributes** – Any living or nonliving feature or process of the environment that can be measured or estimated and that provide insights into the state of the ecosystem. The term indicator is reserved for a subset of attributes that is particularly information-rich in the sense that their values are somehow

indicative of the quality, health, or integrity of the larger ecological system to which they belong.

**benthic** – Living at, in, or associated with structures on the bottom of a body of water.

**berm** – A mound of earth or sand formed into a narrow shelf, path, or ledge which is typically located at the top or bottom of a slope.

**biomass** – Represents the entire community of living biological organisms in a given area or ecosystem at a certain point in time.

**biome** – A complex biotic community extending over a large geographic area and characterized by distinctive plant and animal species and the prevailing climate.

**blowout** – A sandy depression in a sand dune ecosystem caused by the removal of sediment by wind. This usually occurs when a patch of protective vegetation is lost.

**boreal relic** – A group of plants with characteristics similar to those found in northern Boreal forests that are remnants of historical ecological conditions and are unlike the current surrounding vegetation.

**calcareous** – Mostly or partly composed of calcium carbonate, or containing lime and being chalky.

**clay sill** – A tabular igneous intrusion that parallels the bedding of the surrounding sedimentary or metamorphic rock.

**chart datum** – The lowest astronomically predictable tide level, this level is used as a reference level on nautical charts; the maps of the lake and lakebed.

**demersal** – Living near, deposited on, or sinking to the bottom of a body of water.



**dreissenid** – A small, aquatic bivalve mollusk which attaches to stones or any other hard surface in freshwater.

**dune succession** – The process of a dune changing from inorganic and unpopulated, to a dune that has organic components and is highly populated. It is the evolution of a dune beginning with its development as a foredune close to the beach with little established vegetation, to the final stage as a wooded dune farther back from the beach.

**dynamically stable** – A dynamic equilibrium where the shoreline shape is relatively constant over a period of months or years. Although the shoreline shape is constant, in response to varying winds, waves and currents, the position of the shoreline at any particular time will vary about the average.

**ecological restoration** – Highlights the recovery of pre-disturbance biotic communities and native species composition. It attempts to return an ecosystem or natural community to historic, pre-disturbance conditions. In its broadest sense, ecological restoration is the process of assisting the recovery of a degraded, damaged, or severely altered ecosystem. Example: Remove invasive species from an otherwise intact habitat, such as a panne.

**ecological preservation** – The act or process of applying the measures necessary to sustain the existing form, function, and integrity of an ecosystem or natural area. Preservation focuses on protection and avoids degradation altogether. Example: Early Detection and Rapid Response.

**ecological indicator** – Measurable attributes of the environment that provide insights regarding (1) the functional status of one or more key ecosystem processes, (2) the status of ecosystem properties that are clearly related to these ecosystem processes, and/or (3) the capacity of ecosystem processes or properties to resist or recover from natural disturbances and/or anthropogenic stressors. In the context of ecosystem health, key

ecosystem processes and properties are those that are most closely associated with the capacity of the ecosystem to maintain its characteristic structural and functional attributes over time (including natural variability).

**embayment** – A bay or a formation resembling a bay or the formation of a bay.

**embryonic dunes** – Dry beach features resembling miniature dunes, formed by wind-deposited sand on and leeward of objects that decrease wind velocity, such as driftwood and vegetation.

**endemic** – Flora, fauna, or other distinctive characteristics that are exclusively found in a defined geographic location.

**entrainment** – The process by which sediment from the surface is incorporated into a fluid flow, such as air or water, as part of the process of erosion.

**eroded parabolic dune** – A U-shaped dune with elongated arms formed as a result of a blowout area.

**fen** – A type of wetland characterized by neutral or alkaline water chemistry with high dissolved mineral levels but few other plant nutrients and fed by mineral-rich surface water or groundwater.

**fillet beach** – A beach formed by accretion processes, or retained by a coastal protection structure.

**foraging** – The act of searching for and exploiting food resources.

**foredune** – Low, very active dunes that run parallel to the shoreline of a large lake or ocean and are stabilized by vegetation. They are often the smallest and youngest dunes along a coast and are located just shorewards of embryonic dunes.

**hardened structures** – Navigational and industrial structures as well as other materials installed to armor the shoreline, including revetment walls and sheet piling.

**high floristic quality** – A quantitative indicator of good ecosystem health based on the Floristic Quality Assessment. Individual, native species are ranked with a Coefficient of Conservatism based on their likelihood to occur in a landscape relatively unaltered from those of pre-settlement times. A higher ranking indicates a lower likelihood of that species appearing in a given setting due to its high ecological requirements, so if many species of high floristic quality are present, the ecosystem is more likely to be healthy and meet those ecological requirements.

**homogenous** – Having the same composition throughout; of uniform make up.

**infaunal** – Aquatic animals that live in the substrate of a body of water, especially in a soft sea bottom.

**interstitial space** – An empty space or gap between spaces full of structure or matter.

**lacustrine** – Of or relating to lakes.

**lake substrate** – The earthy material that exists at the bottom of a lake, such as dirt, rocks, sand, or gravel.

**lakebed down-cutting** – The gradual erosion of cohesive soil, such as clay or glacial till, from a shoreline due to wave interaction.

**lee side** – The side of something that is sheltered from the wind.

**leeward** – On or toward the side sheltered from the wind; downwind.

**littoral** – Of or pertaining to the shore of a large body of water.

**longshore transport** – The sediment movement with a direction parallel to the shoreline; alongshore.

**low water datum** – The base elevation for Lake Michigan, used as a reference level for measurement of water depth.

**macroinvertebrate** – An invertebrate that is large enough to be seen without a microscope.

**maintenance dredging** – The routine removal of accumulated sediment from the bottom of a waterway to ensure continued ease of navigation or the holding capacity of reservoirs or lakes.

**marl** – Lake sediments which have been hardened over time to create a calcium carbonate or lime-rich mud or mudstone which contains variable amounts of clays and aragonite, or crystalized calcium carbonate.

**meiofauna** – Small, aquatic invertebrates that live on or within the substrate on the bottom of a large body of water.

**mesic** – A type of habitat with a moderate or well-balanced supply of moisture.

**mesophytic** – Grown in or adapted to a moderately moist environment.

**mitigation measures** – Steps taken to moderate, or reduce the severity of, a quality or condition in force or intensity.

**net transport rate** – The net amount of sediment movement in the predominant direction; expressed in cubic yards per year.

**oligotrophic** – A lake with low primary biological productivity as a result of low nutrient content. These lakes have very clear water, high drinking-water quality, ample oxygen, and support a wide variety of fish species due to relatively low levels of algae.

**open-water placement** – Placing of dredged sediment in an open-water section of the lake, away from the dredging location. This sediment must be clean and meet set federal guidelines to qualify for open-water placement.

**overflight** – An air flight over a specific area, country or territory.

**pannes** – A series of shallow ponds located among sand dunes.

**pelagic** – Occurring in or over open water and away from the bottom.

**phytoplankton** – Photosynthesizing microscopic organisms which inhabit the upper sunlit layer of most water bodies. If they are present in a large quantity, they can make the water body appear green.

**piscivorous** – Fish-eating.

**pseudofeces** – Wastes released by filter-feeding bivalve mollusks that are comprised of suspended particles which have been rejected as unsuitable for food.

**recolonization** – The reestablishment of flora and fauna in an ecologically disturbed area. Vegetative recolonization begins with hardy species such as grasses and progresses with more sensitive species as the area recovers environmentally.

**refugia** – Any local environments that have escaped regional ecological change and therefore provide habitats for threatened or endangered species.

**revetment** – Sloping structures placed on banks or cliffs in such a way as to absorb the energy of incoming water

**sandscape** – A landscape dominated by sand.

**sediment budget** – A coastal management tool used to balance the sediment volumes entering or exiting a particular section of coast. This can be used to predict changes to the form and structure of a coastline over time.

**sediment deficit** – A net loss of sediment from a coastline, based on the sediment budget. This can be remedied by physically

adding sediment to a coastline to combat widespread erosion.

**seedbank** – A stockpile of seeds which acts as a source for planting in case seed reserves elsewhere are destroyed.

**sheet piling** – A cylindrical or flat member of wood, steel, concrete, etc., often tapered or pointed at the lower end, hammered vertically into soil to form part of a foundation or retaining wall. They are driven side by side to retain earth, etc., or to prevent seepage into an excavation.

**social trails** – A path developed by erosion caused by footfall. The path usually represents the shortest or most easily navigated route between an origin and destination. The width and amount of erosion of the line represents the amount of demand.

**soundscapes** – An atmosphere or environment created by or with sound.

**spawning** – To deposit eggs or sperm directly into the water, as fishes.

**swash zone** – A turbulent layer of water that washes up on the beach after an incoming wave has broken. The swash action can move beach material up and down on the beach, which results in the cross-shore sediment exchange.

**taxa** – Taxonomic categories, as a species or genus.

**tectonic activity** – Movement associated with the earth's structural features.

**terrestrial fauna** – The aggregate of animals that inhabit dry land.

**thermoregulatory** – Tending to maintain a body at a particular temperature whatever its environmental temperature.

**trophic level** – The position an organism occupies on the food chain.

**viewshed** – An area of land, water, or other environmental element that is visible to the human eye from a fixed vantage point.

**zooplankton** – Heterotrophic (sometimes detritivorous) plankton. Plankton are organisms drifting in oceans, seas, and bodies of fresh water.

